

# HAWAII STATE DEPARTMENT OF HEALTH DISEASE OUTBREAK CONTROL DIVISION

## Influenza Surveillance Report Morbidity and Mortality Weekly Report (MMWR)<sup>1</sup>

WEEK 40: OCTOBER 1, 2017–OCTOBER 7, 2017

**OVERVIEW:** The Hawaii State Department of Health (HDOH) monitors influenza and other respiratory pathogens throughout the state of Hawaii. Influenza surveillance in the state of Hawaii relies upon selected sentinel health practitioners, the State Laboratories Division (SLD), private laboratories, and the Office of Health Status Monitoring (OHSM). For detailed information concerning influenza, please visit the HDOH Disease Outbreak Control Division (HDOH DOCD) website ([here](#)). **All data and information are conditional and may change as more reports are received.**

### REPORT SNAPSHOT FOR WEEK 40

*The 2017–18 influenza season began during week 40<sup>1</sup> (2017) and will end on week 39 (2018)*

| Surveillance for Influenza-like Illness (ILI)  |       |  |
|--|-------|--|
| Metric   | Value | Comment  |
| Outpatient visits related to influenza-like illness (ILI) from ILINet Sentinel Providers | 2.0%  | Higher than the previous week. Comparable to Hawaii's historical baseline, comparable to the national ILI rate, and comparable to the national baseline. |
| Number of ILI clusters reported to HDOH  | 1     | There has been a total of 1 cluster this season.   |

| Laboratory Surveillance   |      |  |
|---|------|--|
| Percent of all respiratory specimens positive for influenza this week           | 7.9% | Lower than the previous week. This number means that many, if not all, of the 92.1% who tested negative for influenza had illness from another respiratory etiology. |
| Percent of all respiratory specimens positive for influenza this season to date | 7.9% |  |

| Surveillance for Severe Outcomes                                    |       |  |
|---|-------|--|
| Pneumonia and influenza (P&I) mortality rate                        | 11.3% | Comparable to Hawaii's historical baseline. Due to data processing problems, NCHS mortality surveillance data for this week will be delayed. |
| Number of influenza-associated pediatric deaths reported nationwide | 0     |  |

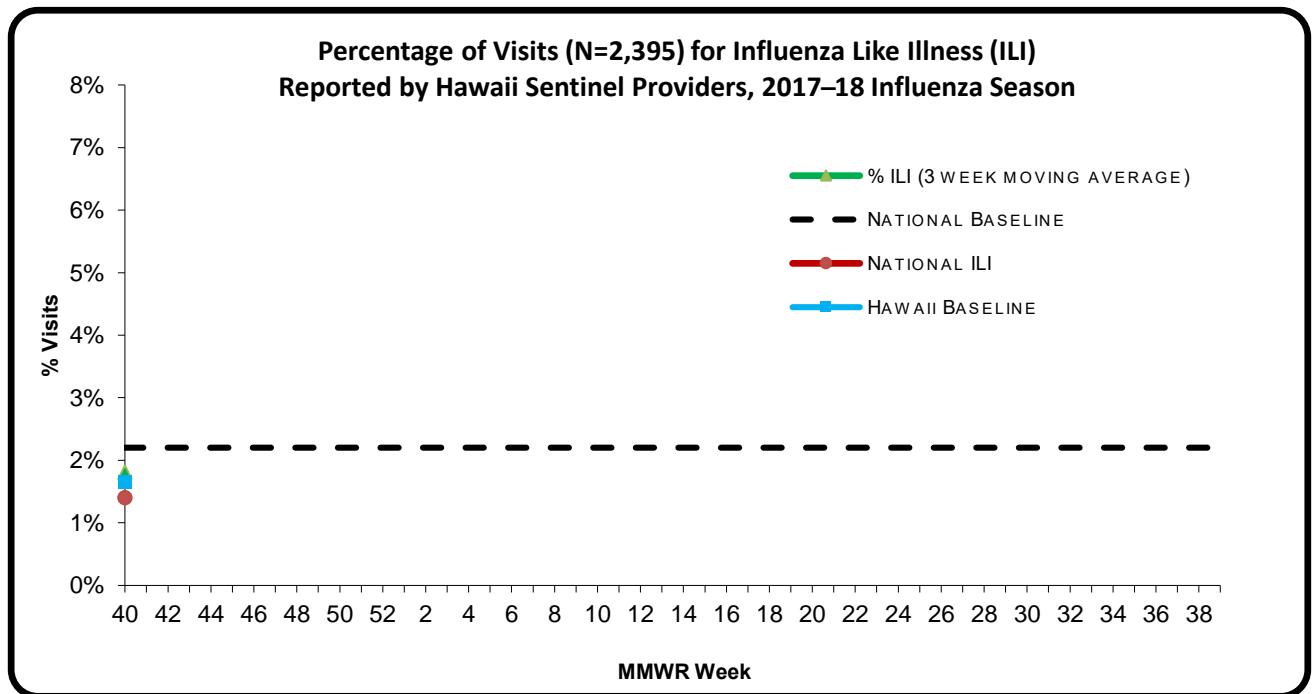
<sup>1</sup> MMWR stands for "Morbidity and Mortality Weekly Report," conventionally used by the Centers for Disease Control and Prevention (CDC). The weeks of a flu season are often referred to by their respective MMWR week. See appendix 2 for interpretation of MMWR weeks.

## INFLUENZA SURVEILLANCE

**I. INFLUENZA-LIKE ILLNESS (ILI):** HDOH collaborates with recruited doctors and healthcare providers who report the total number of outpatient visits for ILI as well as the total number of patients who complained of symptoms consistent with an ILI. A patient with ILI must have the following: a fever (temperature of 100°F [37.8°C] or greater) AND a cough and/or a sore throat without a known cause other than influenza. ILI is based on reported symptoms and not laboratory confirmed tests; thus, ILI may represent other respiratory pathogens and not solely influenza. Further, sentinel providers report these numbers on a weekly basis; therefore, data are preliminary and may change depending on additional reporting. In combination with laboratory testing and other surveillance systems, ILI surveillance helps monitor influenza and other respiratory pathogen activity. For more information concerning ILINet and sentinel requirements, please visit the CDC website ([here](#)).

For week 40 of the current influenza season:

- **2.0%** (season to date: **1.0%**) of the outpatient visits recorded by Hawaii sentinel providers were for ILI.
- ILI visits were comparable to the historical baseline in Hawaii<sup>2-3</sup> (i.e., inside the 95% confidence interval).
- Hawaii's ILI outpatient visits were comparable to the national baseline (2.2%)<sup>4</sup> (i.e., inside the 95% confidence interval) and comparable to the national ILI rate (1.4%) (i.e., inside the 95% confidence interval).
- **ILI Cluster Activity:** One new cluster was reported to HDOH during week 40. This cluster occurred at a school on Maui. This cluster had cases of influenza B.



<sup>2</sup> The Hawaii historical baseline (%ILI) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2011–2012, 2012–2013, 2013–2014, 2014–2015, 2015–2016).

<sup>3</sup> This value is based upon comparison of actual outpatient ILI with the historical baseline, which only captures outpatient ILI. The chart above represents a 3-week moving average and not the actual ILI by week.

<sup>4</sup> The National Baseline is calculated by CDC as the mean percentage of visits for ILI during weeks 21–39 with two standard deviations. Because of large variability in regional ILI, comparison of the national baseline with local ILI may not be appropriate. It is provided in this report because no meaningful regional baselines are available for comparison. The national baseline combines all data reported by states to CDC, including ILI in outpatient, ER, urgent care, and inpatient settings.

**II. LABORATORY SURVEILLANCE:** State Laboratories Division (SLD; the HDOH public health laboratory) and Hawaii's major private laboratories (DLS, CLH) report results of RT-PCR, which can be considered confirmatory (SLD may perform viral culture on select specimens). Specimens meeting priority criteria<sup>5</sup> are forwarded to SLD for sub-typing. Additionally, specimens meeting case definition from requesting sentinel providers are sent directly to SLD for sub-typing. Due to resource constraints, not all submitted specimens undergo sub-typing. Sub-typing at the commercial laboratories is only conducted on a case-by-case basis. The majority of specimens testing positive by rapid antigen testing or RT-PCR at the commercial laboratories do not meet criteria and are not subtyped. For more information on influenza tests and types, please visit the CDC website ([here](#)).

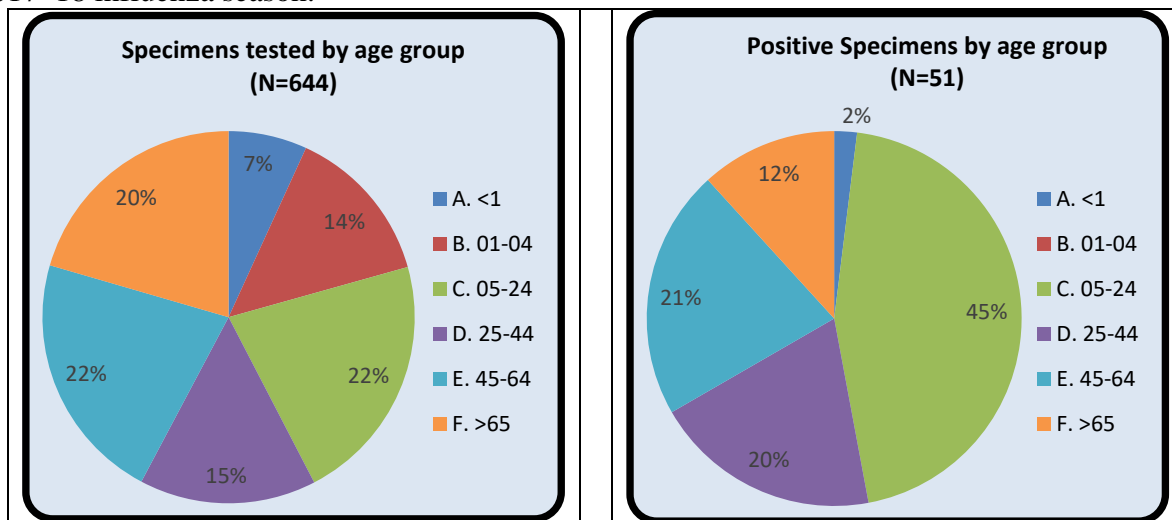
### A. INFLUENZA:

- The following reflects laboratory findings for week 40 of the 2017–18 influenza season:
  - A total of **644** specimens have been tested statewide for influenza viruses (positive: **51 [7.9%]**). (Season to date: **644** tested [**7.9%** positive])
    - 451 (70.0%) were screened only by rapid antigen tests with no confirmatory testing
    - 193 (30.0%) underwent confirmatory testing (either RT-PCR or viral culture)
    - 593 (92.1%) were negative.

| <i>Influenza type</i>               | <i>Current week 40 (%)</i> | <i>Season to date (%)</i> |
|-------------------------------------|----------------------------|---------------------------|
| <i>Influenza A (H1)<sup>6</sup></i> | 0 (0.0)                    | 0 (0.0)                   |
| <i>Influenza A (H3)</i>             | 0 (0.0)                    | 0 (0.0)                   |
| <i>Influenza A no subtyping</i>     | 33 (64.7)                  | 33 (64.7)                 |
| <i>Influenza B (Yamagata)</i>       | 0 (0.0)                    | 0 (0.0)                   |
| <i>Influenza B (Victoria)</i>       | 0 (0.0)                    | 0 (0.0)                   |
| <i>Influenza B no genotyping</i>    | 18 (35.3)                  | 18 (35.3)                 |

### 1. AGE DISTRIBUTION

The pie charts below indicate the distribution of specimens tested and positive influenza cases in Hawaii by age group during the 2017–18 influenza season.

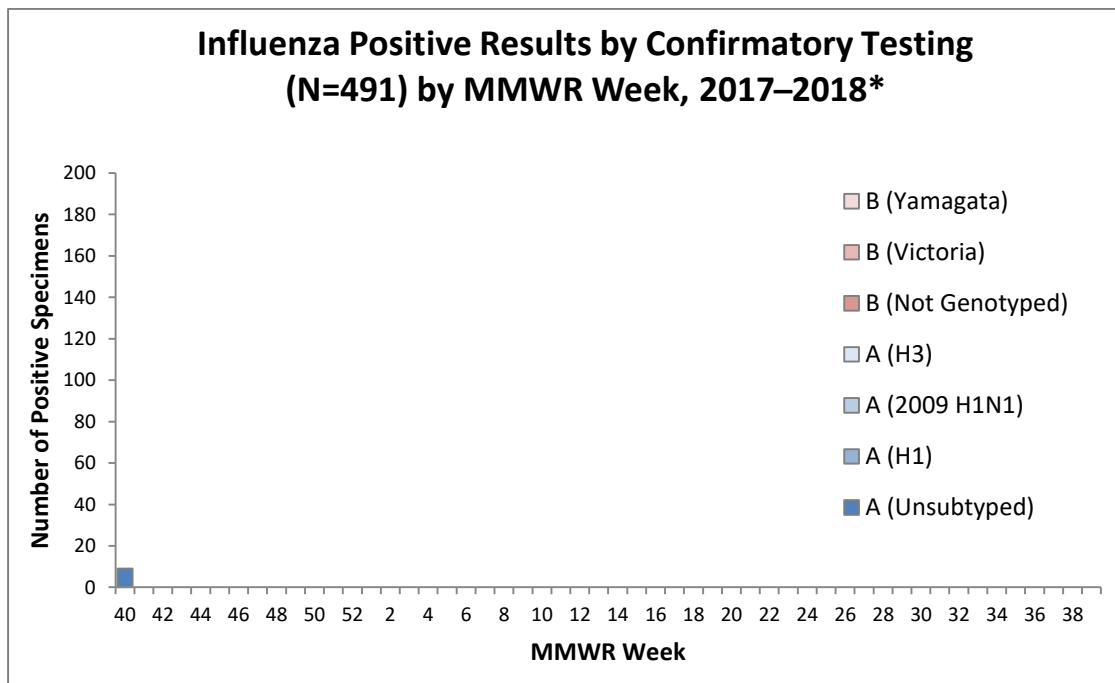
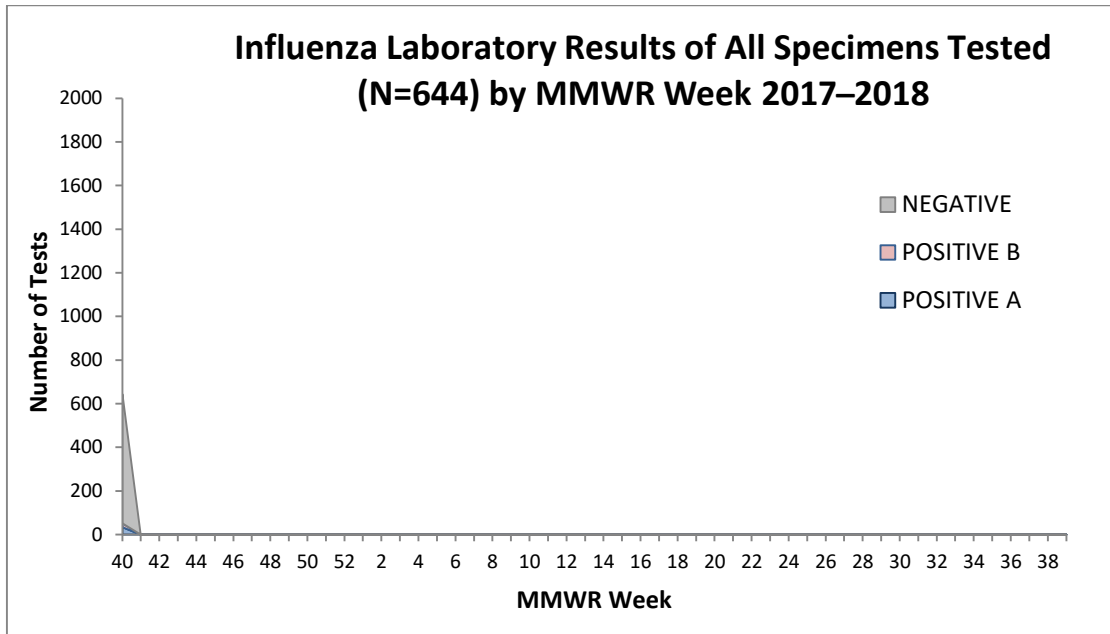


<sup>5</sup> Priority criteria include: hospitalized patients with acute respiratory distress syndrome [ARDS] or x-ray confirmed pneumonia; travelers with international travel history within 10 days of onset; specimens submitted by sentinel providers; specimens collected from healthcare workers, pregnant women, or women up to 6 weeks' post-partum; those with underlying medical conditions; and patients presenting with unusual or severe manifestations of influenza infection.

<sup>6</sup> All influenza A H1 viruses detected this season have been 2009 H1N1. Other H1 viruses have not been detected since 2010.

## 2. LABORATORY TESTING

The charts below show the laboratory results of all specimens tested for influenza by MMWR week during the 2017–2018 influenza season as well as the type and subtype of positive results for influenza. Again, sub-typing is only performed on selected specimens tested by confirmatory tests (i.e., RT-PCR or viral culture).



\* Not all positive influenza specimens receive confirmatory testing, and results may not necessarily represent the proportion of types/subtypes that are circulating in Hawaii.

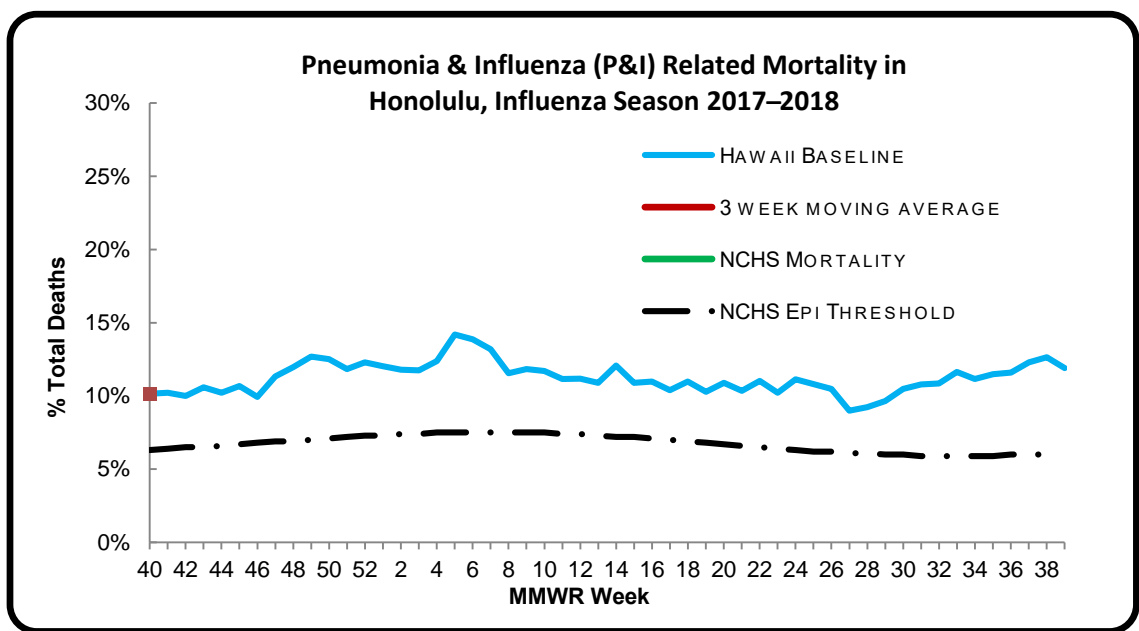


### III. PNEUMONIA AND INFLUENZA (P&I) RELATED MORTALITY:

P&I mortality surveillance is collected by CDC using two methods: 122-cities and pediatric mortality. Each week the HDOH OHSM reports specific data from Honolulu to the CDC along with 121 other cities from across the United States. CDC collects the following information by age group: the total number of deaths, total deaths from pneumonia, and total deaths related to influenza. Studies have suggested that P&I is a good indicator of influenza-related deaths and therefore P&I is one method for influenza surveillance.

For week 40 of the current influenza season:

- *11.3% of all deaths that occurred in Honolulu during week 40 were related to pneumonia or influenza. For the current season (season to date: 11.3%), there have been 80 deaths from any cause, 9 of which were due to P&I.*
- *The P&I rate was comparable to the historical baseline in Hawaii<sup>7</sup> (i.e., inside the 95% confidence interval).*
- *The CDC's National Center for Health Statistics (NCHS) P&I mortality<sup>8</sup> will not be published this week due to data processing issues. Efforts continue to reduce and monitor the number of records awaiting manual coding.*



### INFLUENZA-ASSOCIATED PEDIATRIC DEATHS<sup>9</sup>:

- No influenza-associated pediatric deaths have been reported in Hawaii during the 2017–2018 season.
- Nationally, no influenza-associated pediatric deaths were reported to CDC during week 40. (Season total: 0).

<sup>7</sup> The Hawaii historical baseline (%P&I) is the average of 3-week moving averages over the preceding five flu seasons of historical data (2010–2011, 2011–2012, 2012–2013, 2013–2014, and 2014–2015).

<sup>8</sup> Each week, the vital statistics offices of 122 cities across the United States report the total number of death certificates processed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death by age group (Under 28 days, 28 days–1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–74 years, 75–84 years, and ≥85 years). The percentage of deaths due to pneumonia and influenza (P&I) are compared with a seasonal baseline and epidemic threshold value calculated for each week.

<sup>9</sup> Influenza-associated deaths are considered pediatric in persons aged less than 18 years. It was made a nationally notifiable condition in October, 2004. All pediatric influenza-associated deaths are laboratory confirmed.

**IV. INFLUENZA WATCH:** As part of a comprehensive influenza surveillance system and to prevent the spread of contagious respiratory diseases in humans, it is important to monitor all circulating influenza types. Several animal-origin influenza A subtypes are currently of interest: influenza A variant virus (H3N2v, H1N2v, and H1N1v) and Avian flu (H5N1 and H7N9). These types of influenza viruses may cause zoonotic (animal-associated) disease and are a public health concern.

**A. VARIANT VIRUSES:**

Influenza viruses that normally circulate in pigs are called “variant” viruses when they are found in people. These viruses were first identified in U.S. pigs in 2010. In 2011, 12 cases of H3N2v infection were detected in the United States. In 2012, 309 such cases (resulting in 16 hospitalizations and one death) across 12 states were detected, including one Hawaii case who recovered. Illness associated with H3N2v infection has been mostly mild with symptoms similar to those of seasonal flu. However, serious illness, resulting in hospitalization and death, has occurred in some cases. Most of these infections have been associated with prolonged exposure to pigs at agricultural fairs or similar settings. Limited human-to-human spread of this virus has been detected in the past, but no sustained community spread of H3N2v has been identified. More information regarding H3N2v, H1N1v, and H1N2v viruses may be found on the CDC website ([here](#)) and ([here](#)).

- *No variant or novel influenza infections have been reported to HDOH during the 2017–2018 influenza season.*
- *No human infections with novel influenza A viruses, H1N1v, H3N2v, and H1N2v, have been reported to CDC during the 2017–2018 influenza season.*

**B. AVIAN (OR BIRD) INFLUENZA:**

These types of influenza viruses cause zoonotic (animal-associated) disease of public health concern and are therefore monitored globally by the WHO. Most avian influenza viruses do not cause disease in humans and are generally not easily transmissible between person to person, but a few subtypes may cross the species barrier and cause disease in humans. Avian influenza viruses may be of various subtypes, including H5N1, H5N2, H5N8, H7N3, H7N7, H7N8, H7N9, and H9N2. On January 15<sup>th</sup>, 2016, the USDA and APHIS reported detection of HPAI H7N8 in a commercial turkey flock in Indiana. There have been no associated human infections. This is the first detection of HPAI H7N8 in wild bird surveillance in the United States. More information, the risk assessment and recommendations for HPAI H7N8 can be found ([here](#)). The WHO, CDC, and other public health agencies have also been monitoring influenza H7N9, which represents a public health concern because of its high pandemic potential. Although H7N9 has not been detected in the United States, it remains a global concern given continuing epidemics in endemic countries, with China in its fifth epidemic, and 1,557 laboratory-confirmed human infections as of July 25, 2017. More information on H7N9 virus infections can be found ([here](#)). For more information regarding avian influenza, please visit the CDC ([here](#)) or the WHO ([here](#)) websites. WHO reports total number of cases and deaths related to laboratory-confirmed avian influenza viruses and posts current avian influenza case counts ([here](#)), which were last updated on **September 27, 2017**.



**V. INFLUENZA VACCINE:** Annual influenza vaccination is recommended for all persons aged 6 months and older and is the most effective way to reduce the risk of getting sick with seasonal flu and spreading it to others. Influenza vaccination can reduce illnesses, visits to the doctor, influenza-related hospitalizations, and missed work and school days. Influenza vaccines become available by the end of October. It takes at least two weeks after vaccination to confer immunity against influenza virus infection. More information regarding influenza vaccination can be found ([here](#)).

**A. 2016–2017 INFLUENZA VACCINE EFFECTIVENESS:**

Data collected through the U.S. Influenza Vaccine Effectiveness Network from November 28, 2016–April 14, 2017 indicate that influenza vaccination this season reduced the overall risk for influenza-associated medical visits by 42%, with effectiveness against the influenza A(H3N2) and influenza B viruses at 34% and 56% respectively.

**B. COMPOSITION OF THE 2017–2018 INFLUENZA VACCINE:**

The composition of the 2017–2018 influenza vaccine has been updated to better match circulating influenza viruses. The Food and Drug Administration’s Vaccines and Related Biologic Products Advisory Committee (VRBPAC) has recommended that the 2017–2018 influenza trivalent vaccine contain an A/Michigan/45/2015 (H1N1)pdm09-like virus, an A/Hong Kong/4801/2014 (H3N2)-like virus, and a B/Brisbane/60/2008-like (B/Victoria lineage) virus. Quadrivalent vaccines, which contain two influenza A and two influenza B viruses, are recommended to contain a B/Phuket/3073/2013-like (B/Yamagata lineage) virus in addition to the same viruses recommended for the trivalent vaccines. These vaccine recommendations were based on a number of factors, including global influenza virologic and epidemiologic surveillance, genetic and antigenic characterization, human serology studies, antiviral susceptibility, and the availability of candidate influenza viruses.

**APPENDIX 1: ADDITIONAL INFORMATION**



For more information regarding local and national influenza surveillance programs, visit the following sites.

|   |   |
|---|---|
| <b>Centers for Disease Control and Prevention</b> | <a href="#">General Influenza</a><br><a href="#">National ILI and P&amp;I Data</a><br><a href="#">Vaccine Virus Selection</a>   |
| <b>Flu.gov</b>                                    | <a href="#">General Influenza Information</a>   |
| <b>HDOH Flu and Pneumonia</b>                     | <a href="#">General Influenza Surveillance</a><br>To find out more information or join the sentinel physician program, email the <a href="#">Influenza Surveillance Coordinator</a> |
| <b>World Health Organization</b>                  | <a href="#">General Global and Local Influenza</a><br><a href="#">Avian Influenza</a>   |

## APPENDIX 2: MMWR WEEK DATES

Please refer to the table below to interpret data presented by MMWR week. Week 40 is considered the traditional start for the flu season for the Northern Hemisphere.

| MMWR WEEK | 2014       | 2015       | 2016       | 2017       | 2018       |
|-----------|------------|------------|------------|------------|------------|
| 1         | 1/4/2014   | 1/10/2015  | 1/9/2016   | 1/7/2017   | 1/6/2018   |
| 2         | 1/11/2014  | 1/17/2015  | 1/16/2016  | 1/14/2017  | 1/13/2018  |
| 3         | 1/18/2014  | 1/24/2015  | 1/23/2016  | 1/21/2017  | 1/20/2018  |
| 4         | 1/25/2014  | 1/31/2015  | 1/30/2016  | 1/28/2017  | 1/27/2018  |
| 5         | 2/1/2014   | 2/7/2015   | 2/6/2016   | 2/4/2017   | 2/3/2018   |
| 6         | 2/8/2014   | 2/14/2015  | 2/13/2016  | 2/11/2017  | 2/10/2018  |
| 7         | 2/15/2014  | 2/21/2015  | 2/20/2016  | 2/18/2017  | 2/17/2018  |
| 8         | 2/22/2014  | 2/28/2015  | 2/27/2016  | 2/25/2017  | 2/24/2018  |
| 9         | 3/1/2014   | 3/7/2015   | 3/5/2016   | 3/4/2017   | 3/3/2018   |
| 10        | 3/8/2014   | 3/14/2015  | 3/12/2016  | 3/11/2017  | 3/10/2018  |
| 11        | 3/15/2014  | 3/21/2015  | 3/19/2016  | 3/18/2017  | 3/17/2018  |
| 12        | 3/22/2014  | 3/28/2015  | 3/26/2016  | 3/25/2017  | 3/24/2018  |
| 13        | 3/29/2014  | 4/4/2015   | 4/2/2016   | 4/1/2017   | 3/31/2018  |
| 14        | 4/5/2014   | 4/11/2015  | 4/9/2016   | 4/8/2017   | 4/7/2018   |
| 15        | 4/12/2014  | 4/18/2015  | 4/16/2016  | 4/15/2017  | 4/14/2018  |
| 16        | 4/19/2014  | 4/25/2015  | 4/23/2016  | 4/22/2017  | 4/21/2018  |
| 17        | 4/26/2014  | 5/2/2015   | 4/30/2016  | 4/29/2017  | 4/28/2018  |
| 18        | 5/3/2014   | 5/9/2015   | 5/7/2016   | 5/6/2017   | 5/5/2018   |
| 19        | 5/10/2014  | 5/16/2015  | 5/14/2016  | 5/13/2017  | 5/12/2018  |
| 20        | 5/17/2014  | 5/23/2015  | 5/21/2016  | 5/20/2017  | 5/19/2018  |
| 21        | 5/24/2014  | 5/30/2015  | 5/28/2016  | 5/27/2017  | 5/26/2018  |
| 22        | 5/31/2014  | 6/6/2015   | 6/4/2016   | 6/3/2017   | 6/2/2018   |
| 23        | 6/7/2014   | 6/13/2015  | 6/11/2016  | 6/10/2017  | 6/9/2018   |
| 24        | 6/14/2014  | 6/20/2015  | 6/18/2016  | 6/17/2017  | 6/16/2018  |
| 25        | 6/21/2014  | 6/27/2015  | 6/25/2016  | 6/24/2017  | 6/23/2018  |
| 26        | 6/28/2014  | 7/4/2015   | 7/2/2016   | 7/1/2017   | 6/30/2018  |
| 27        | 7/5/2014   | 7/11/2015  | 7/9/2016   | 7/8/2017   | 7/7/2018   |
| 28        | 7/12/2014  | 7/18/2015  | 7/16/2016  | 7/15/2017  | 7/14/2018  |
| 29        | 7/19/2014  | 7/25/2015  | 7/23/2016  | 7/22/2017  | 7/21/2018  |
| 30        | 7/26/2014  | 8/1/2015   | 7/30/2016  | 7/29/2017  | 7/28/2018  |
| 31        | 8/2/2014   | 8/8/2015   | 8/6/2016   | 8/5/2017   | 8/4/2018   |
| 32        | 8/9/2014   | 8/15/2015  | 8/13/2016  | 8/12/2017  | 8/11/2018  |
| 33        | 8/16/2014  | 8/22/2015  | 8/20/2016  | 8/19/2017  | 8/18/2018  |
| 34        | 8/23/2014  | 8/29/2015  | 8/27/2016  | 8/26/2017  | 8/25/2018  |
| 35        | 8/30/2014  | 9/5/2015   | 9/3/2016   | 9/2/2017   | 9/1/2018   |
| 36        | 9/6/2014   | 9/12/2015  | 9/10/2016  | 9/9/2017   | 9/8/2018   |
| 37        | 9/13/2014  | 9/19/2015  | 9/17/2016  | 9/16/2017  | 9/15/2018  |
| 38        | 9/20/2014  | 9/26/2015  | 9/24/2016  | 9/23/2017  | 9/22/2018  |
| 39        | 9/27/2014  | 10/3/2015  | 10/1/2016  | 9/30/2017  | 9/29/2018  |
| 40        | 10/4/2014  | 10/10/2015 | 10/8/2016  | 10/7/2017  | 10/6/2018  |
| 41        | 10/11/2014 | 10/17/2015 | 10/15/2016 | 10/14/2017 | 10/13/2018 |
| 42        | 10/18/2014 | 10/24/2015 | 10/22/2016 | 10/21/2017 | 10/20/2018 |
| 43        | 10/25/2014 | 10/31/2015 | 10/29/2016 | 10/28/2017 | 10/27/2018 |
| 44        | 11/1/2014  | 11/7/2015  | 11/5/2016  | 11/4/2017  | 11/3/2018  |
| 45        | 11/8/2014  | 11/14/2015 | 11/12/2016 | 11/11/2017 | 11/10/2018 |
| 46        | 11/15/2014 | 11/21/2015 | 11/19/2016 | 11/18/2017 | 11/17/2018 |
| 47        | 11/22/2014 | 11/28/2015 | 11/26/2016 | 11/25/2017 | 11/24/2018 |
| 48        | 11/29/2014 | 12/5/2015  | 12/3/2016  | 12/2/2017  | 12/1/2018  |
| 49        | 12/6/2014  | 12/12/2015 | 12/10/2016 | 12/9/2017  | 12/8/2018  |
| 50        | 12/13/2014 | 12/19/2015 | 12/17/2016 | 12/16/2017 | 12/15/2018 |
| 51        | 12/20/2014 | 12/26/2015 | 12/24/2016 | 12/23/2017 | 12/22/2018 |
| 52        | 12/27/2014 | 1/2/2016   | 12/31/2016 | 12/30/2017 | 12/29/2018 |
| 53        |            |            |            |            |            |